

TWO NEW SPECIES OF HYDROPTILIDAE (TRICHOPTERA) FROM TASMANIA'S WORLD HERITAGE AREA

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Abstract

Two new microcaddisfly species are described from Tasmania's World Heritage Area, one each in *Oxyethira* Eaton and *Tricholeiochiton* Kloet & Hincks. Specimens of both were collected in a survey of invertebrates of buttongrass moorland in south-western Tasmania. The disjunct Australian distribution of the genus *Tricholeiochiton* is discussed briefly.

Introduction

Tasmanian Trichoptera were sampled extensively in the early 1970s as part of a project which culminated in the publication by Neboiss (1977) on the taxonomy and zoogeography of Tasmanian Trichoptera. Since that work, further studies on the Tasmanian trichopteran fauna have been undertaken, such as that of Jackson (1991). Yet, despite what is probably some of the most thorough collecting of Trichoptera for any part of Australia, new hitherto unknown Tasmanian species are still being collected. Moreover, discovery of one of the two hydroptilid species newly described here, *Tricholeiochiton pennyae* sp. nov., is significant biogeographically as it extends the Australian distribution of the genus *Tricholeiochiton* Kloet & Hincks from northern Australia, where four species are known (Wells 1982), to an isolated locality in south-western Tasmania. The Australian distribution of the genus is thus highly disjunct, as is its world distribution - from South Africa and the Palaearctic (possibly with only one species each), through the Oriental Region (several species), to Australia.

The second new species, in the cosmopolitan genus *Oxyethira* Eaton, belongs in the Australian, New Zealand and New Caledonian subgenus *Trichoglene* Neboiss. It brings Australian representation of this subgenus to eight species (see Wells 1981, 1985, 1990a), distributed in Tasmania and the more coastal parts of the continent, including the south-west but not north-west Western Australia. In male genitalic features, the new species most closely resembles *O. (T.) columba* (Neboiss), which is distributed from Tasmania and southern South Australia, through the higher rainfall parts of Victoria and northwards along the east coast to where it overlaps the closely related north-eastern *O. (T.) triangulata* Wells, just to the north of Townsville. While both of these species generally are abundant at particular localities, the small number of individuals of the new species collected suggest that the population may be rather sparse in the habitat studied.

The extension to the range of *Tricholeiochiton* is intriguing geographically. The nearest congener, *T. fidelis* Wells, occurs around Townsville in north-eastern Australia, as well as in the north of the Northern Territory and the Kimberley region of Western Australia. *Tricholeiochiton bifurcus* Wells, which most closely resembles the new species, also occurs across northern

Australia from the Kimberley to Cape York, Queensland. In describing the four northern *Tricholeiochiton* species (Wells 1982), I remarked that their distribution in Australia provides evidence in support of the presence of an Oriental component in the Australian microcaddisfly fauna. The isolated occurrence of the new species in Tasmania, well south of the tropics, weakens support for this idea. *Tricholeiochiton* may be a very old, pre-Gondwanan component of the fauna. *Tricholeiochiton fidelis* (from Australia) very closely resembles *T. fagesii* (Guinard) (Europe and Russia), *T. lacustris* Kimmins (Myanmar), *T. fortensis* (Ulmer) (Java, Sumatra, West Malaysia) and *T. suwannee* Chantaramongkol & Malicky (Sri Lanka). In the form of their male genitalia, however, all other Australian congeners, including this new Tasmanian species, appear to form a separate group. Perhaps this group and *T. fidelis* have separate histories in Australia, the latter being of more recent Oriental origin.

Tricholeiochiton is possibly one of the more highly derived of the microcaddisfly genera. It was considered by Wells (1987) to be most closely related to *Orphninoichia* Mosely, which hitherto was considered to be endemic in south-eastern Australia and the northern part of the Northern Territory, but now is known to occur on Lord Howe Island as well (Wells, in press). The two genera certainly exhibit very close similarities in male genitalia. The female genitalic features are dissimilar, however, and the larvae quite remarkably so. In a cladistic analysis of hydroptilid genera, Kjærensen (in litt.) found that *Orphninoichia* groups with *Oxyethira* as the sister group of *Tricholeiochiton*.

Methods and Abbreviations

Material was prepared for study and storage using the method described by Wells (1990b). All specimens were collected by sweep-netting by Penelope Greenslade (see Greenslade 1997) and are lodged in the Australian National Insect Collection (ANIC), Canberra.

Tricholeiochiton pennyae sp. nov.

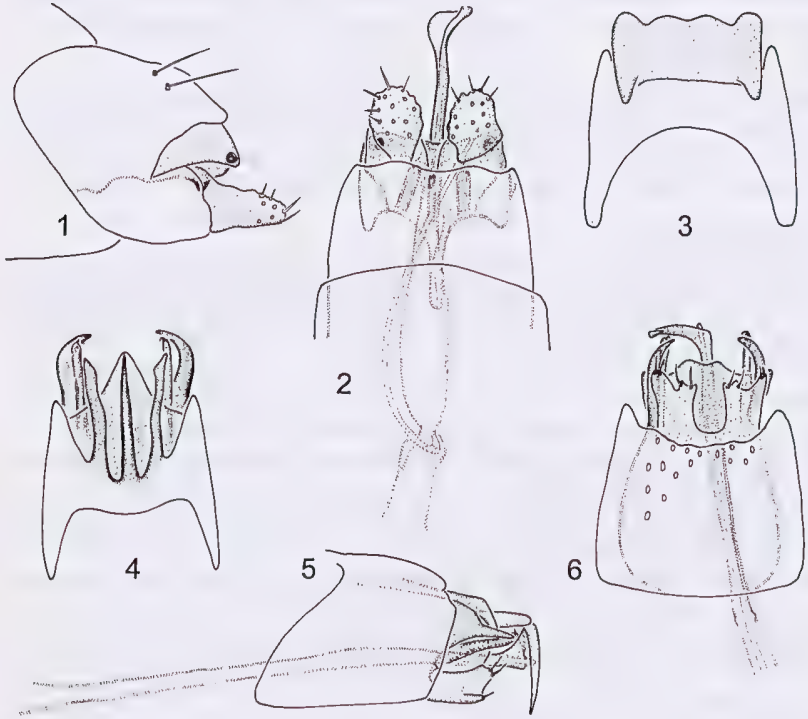
(Figs 1–3)

Types. TASMANIA: *Holotype* ♂, Tasmanian World Heritage Area, Southwest National Park, Melaleuca, 43°31'00"S 146°09'41"E, 13.ii.1997. *Paratypes:* 1 ♂, same locality as holotype, 14.ii.1997; 1 ♂, Tasmanian World Heritage Area, Mary Ann Creek, 42°12'17"S 146°10'29"E, 17–18.ii.1997 (all in ANIC).

Description. Male. Body dark coloured. Length of anterior wing, 1.8–2.2 mm. Antennae 25–28-segmented. Genitalia as in Figs 1–3. Tergite X in dorsal view about twice as wide as long, apical margin undulating. Subgenital plate broad, a black tubercle at each apicolateral angle, centrally on ventral side a black spur. Inferior appendages in ventral view appear as broadly rounded lobes, each with a short apically rounded ventral process; in

lateral view, tapered gently towards the apex. Aedeagus broadly flared apically, slender subapically, swollen medially; a titillator present.

Remarks. Among congeners, *T. pennya* shows greatest resemblance to the northern Australian *T. bifurcus*, the inferior appendages being more rounded and sternite IX lacking paired apicomedial projections.



Figs 1–6. Male genitalia. 1–3, *Tricholeiochiton pennya* sp. nov.: (1) lateral, (2) ventral and (3) dorsal views; 4–6, *Oxyethira (Trichoglene) tasmaniensis* sp. nov.: (4) dorsal, (5) lateral and (6) ventral views.

***Oxyethira (Trichoglene) tasmaniensis* sp. nov.**

(Figs 4–6)

Types. TASMANIA: *Holotype* ♂, Tasmanian World Heritage Area, Southwest National Park, Melaleuca, 43°25'10"S 146°08'46"E, 13.ii.1997. *Paratype* ♂, same locality as holotype, 14.ii.1997 (both in ANIC).

Description. Male. Anterior wing length, 1.5 mm. Antennae damaged, segments elongate. Abdominal segment IX broad, deeply and roundly excavated dorsally, three slender sclerotised processes. Tergite X wide basally, tapered to triangular shape distally. Subgenital plate broad, produced slightly posteriorly and shallowly excavated apically. Inferior appendages separated mid-ventrally by a deep U-shaped concavity, apically irregular, setae on an inner lobe and apically on the outer lobe; dorsally on each side a sclerotised spine and arising from the base of each spine, a longer membranous digitiform process, tipped by a short, curved seta. Aedeagus elongate, slender, apically hooked; a straight titillator adpressed for about half length.

Remarks. This is the third species in the *Trichoglene* subgenus known from Tasmania. All are similar in appearance. This new species and *O. mienica* Wells appear to be narrowly restricted in distribution and rare, while *O. columba* is widely distributed and generally abundant.

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